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(71) Applicant *(for all designated States except US)*: **SONERA OYJ** [FI/FI]; Teollisuuskatu 15, FIN-00510 Helsinki (FI).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LINDQVIST, Anssi** [FI/FI]; Sofianlehdonkatu 11 B 12, FIN-00610 Helsinki (FI). **PIPPURI, Sami** [FI/FI]; Johan Bockin kuja 6 A 3, FIN-00720 Helsinki (FI).

(74) Agent: **PAPULA OY**; P.O. Box 981, (Fredrikinkatu 61 A), FIN-00101 Helsinki (FI).

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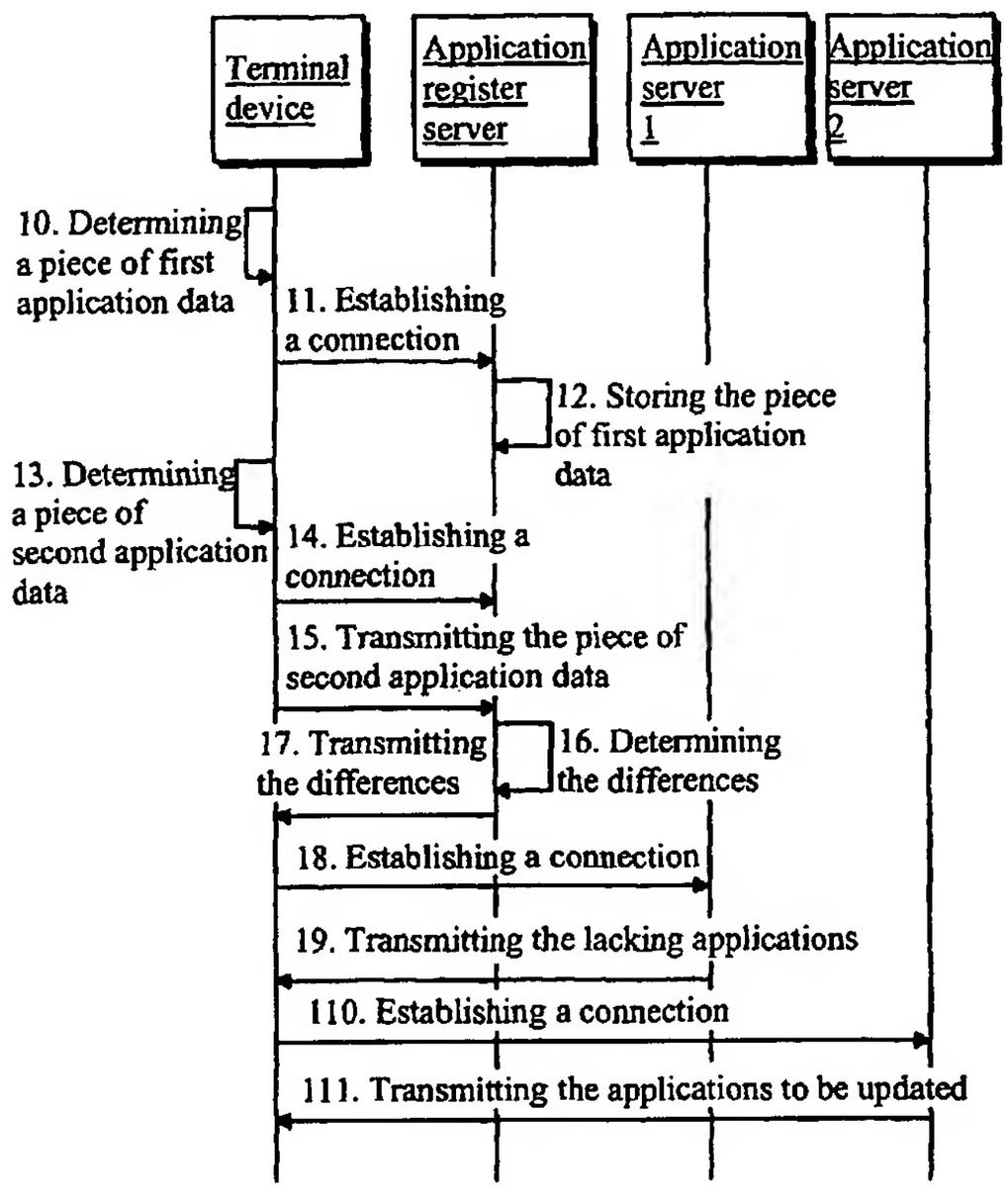
(54) Title: INSTALLING OF THE SOFTWARE APPLICATIONS INTO A TERMINAL DEVICE



(57) Abstract: The present invention relates to a method for installing software applications into a second terminal device in accordance with the first terminal device. In the method, the application data of the first terminal device is determined, a connection is established from the first terminal device to the application register server by way of a telecommunication network, and the determined application data of the first terminal device is stored on the application register server. Further in the method, the application data of the second terminal device is determined, a connection is established from the second terminal device to the application register server by way of the telecommunication network, the differences in the application data of the aforementioned first and second terminal device are determined, a connection is established from the second terminal device to one or more application servers by way of the telecommunication network, the software applications that the second terminal device lacks are transmitted to it from the application servers in question to be installed, and/or from the application servers in question, the updates of the outdated software applications of the second terminal device are tranmitted to it to be installed.

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INSTALLING OF THE SOFTWARE APPLICATIONS INTO A TERMINAL DEVICE

FIELD OF THE INVENTION

The invention relates to telecommunication. In particular, the invention relates to a certification service method in which the information on the software applications included in a terminal device is stored on a server, from which the information can be retrieved e.g. when the terminal device gets damaged or disappears.

BACKGROUND OF THE INVENTION

The number of software applications included in an individual terminal device is constantly increasing as the storage capacity of the terminal devices increases and more and more new software applications are introduced into the market. At the same time, the update tempo of new versions being published of one software application is quickening. In the same way, software applications are becoming a more and more complicated entities which comprises more and more different settings which the user may make in the software application in question. All this has lead to the situation that the applications included in one terminal device have become a complex entity difficult to handle. One specific problem has arisen in a situation in which the terminal device gets damaged or disappears or something else happens to it due to which the software applications included in it should be reinstalled into a new terminal device. The reinstalling of the applications and modifying of their settings to correspond to the previous ones is a process which can take several days. There is thus an obvious need for quickening and facilitating this process.

In the following, the terms to be used are determined. A terminal device is used to mean a device comprising software applications, such as e.g. a PC computer, portable computer, palm-top computer or a mobile station.

The software is usually divided into a piece of operating system software, which comprises the applications associated with the operating system of the terminal device, and into a piece of application software which comprises all the other applications. The term software application is hereinafter used to refer to applications included in both of these application types. The term application is used to mean the same as the term software application.

The term application data is used to mean data which comprises information on one or more software applications. The application data thus comprises e.g. a piece of information on what application version is concerned. Further, in case some software application comprises several components to be installed optionally, the application data comprises in that case a piece of information on what components are installed. In addition, the application data comprises a piece of information on the type of the terminal device, which piece of information is necessary e.g. when there are different versions of the same software application published for different terminal devices.

The term setting data is used to mean data which comprises information on the user settings made in the application, such as e.g. the directories used by the application in question and the settings associated with the outward appearance of the application in question.

The term user data is used to mean data which comprises the documents created/modified by the user using the application.

As a prior-art technique let it be mentioned a certification service in which the data of a mobile station are certified by means of a telecommunication network. By means of this kind of certification service of an intelligent telephone it is possible to store e.g. the user data of a Nokia Communicator terminal device, such as e.g. short messages and contact addresses on a separate certification server. In case the information in the terminal device is lost, the stored data can be returned to the terminal device. It is further known to store user data on servers of a telecommunication network by means of services located in the telecommunication network.

In addition, known in prior art is a solution in which the applications installed in a terminal device are examined, and an application is updated, if there is an update issued for the application in question. The solution in question comprises an application server placed in the network on which there are stored the updates of the applications, as well as a terminal device of the client that is connected to the application server by way of the telecommunication network. The system enables one to manage the updates of computer software in a centralised manner. As an example of the above-mentioned let it be mentioned patent US 6,151,643, to which reference is made herein as the description of prior art.

OBJECTIVE OF THE INVENTION

The objective of the present invention is to disclose a new kind of method and system which eliminate the drawbacks referred to above, or at least significantly alleviate them. One specific objective of the present invention is a certification service method in which the information on the software application included in a terminal device is stored on a server, from which the information can be retrieved

e.g. in case the terminal device gets damaged or disappears.

BRIEF DESCRIPTION OF THE INVENTION

The present invention concerns a method for installing software applications into a second terminal device in accordance with the first terminal device. At first, the application data of the first terminal device is determined, after which a connection is established from the first terminal device to the application register server by way of the telecommunication network, and the determined application data of the first terminal device is stored on the application register server.

According to the invention, the application data of the second terminal device is determined, after which a connection is established from the second terminal device to the application data register by way of the telecommunication network. Next, the differences in the application data of the aforementioned first and second terminal device are determined using either the application register server or the second terminal device. Next, a connection is established from the second terminal device to one or more application servers by way of the telecommunication network. By means of the previously determined differences in the application data of the aforementioned application servers and first and second terminal device, the software applications included in the second terminal device are updated so as to be the same as in the first terminal device. In other words, the software applications that the second terminal lacks are transmitted to and installed into it, and/or updates of such software applications of which the second terminal device has got older versions than the first terminal device are transmitted to and/or installed into it. It must be noted that the term server is used

refer to a functional entity. In one embodiment of the invention, the aforementioned application register server and application server are implemented as a physically integrated entity. In other words, one piece of server equipment is maintained in which the functions of both the application register server and application servers are implemented. Further in one embodiment of the invention, the aforementioned application register server and application server are implemented as entities physically separate from each other.

In one embodiment of the invention, the application data of the second terminal device is transmitted to the application register server after a connection has been established from the second terminal device to the application register server, after which the aforementioned determination of the differences in the application data of the first and second terminal device is made using the application register server. Next, the determined differences in the application data of the first and second terminal device are transmitted to the second terminal device.

In one embodiment of the invention, the application data of the first terminal device is transmitted from the application register server to the second terminal device after a connection has been established from the second terminal device to the application register server, after which the aforementioned determination of the differences in the application data of the first and second terminal device is made using the second terminal device.

In one embodiment of the invention, the setting data of the first terminal device is determined and stored on the application register server. Further, from the second terminal device, a connection is established to the application register server by way of the telecommunication network, the setting data of

the first terminal device stored on the application register server is transferred to the second terminal device, and the settings of the software applications of the second terminal device are modified utilising the transferred setting data of the first terminal device.

In one embodiment of the invention, the user data of the first terminal device is determined and stored on the application register server, a connection is established from the second terminal device to the application register server by way of the telecommunication network, and the user data of the first terminal device stored on the application register server is transferred to the second terminal device.

In one embodiment of the invention, the aforementioned telecommunication network comprises several different types of subnetworks communicating with each other, such as e.g. an Internet network and a mobile communication network, which are connected to each other in some manner known in itself.

The advantage of the present invention compared to prior art is that it offers to its user a bigger independence of his or her terminal device than before. Since on the application register server connected to the telecommunication network, application data of the user as well as possibly also setting and user data are maintained, the user gets easily all the applications and settings of his or her old terminal device into his or her new terminal device in case s(he) changes his or her old terminal device, or when it disappears or gets damaged.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following section, the invention will be described by the aid of the accompanying examples of its embodiments with reference to the accompanying drawing, in which

Fig. 1 schematically represents one method in accordance with the invention; and

Fig. 2 schematically represents one method in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 schematically represents, by way of example, one method in accordance with the invention for installing software applications into a second terminal device in accordance with the first terminal device. At first, at step 10, the application data of the first terminal device is determined, after which at step 11, a connection is established from the first terminal device to the application register server by way of the telecommunication network, and the determined application data of the first terminal device is stored on the application register server at step 12. In the example of Fig. 1, the telecommunication network comprises several different types of subnetworks communicating with each other, such as e.g. an Internet network and a mobile communication network, which are connected to each other in some manner known in itself.

At step 13, the application data of the second terminal device is determined, after which at step 14, a connection is established from the second terminal device to the application register server by way of the telecommunication network. Next, at step 15, the application data of the second terminal device is transmitted to the application register server, after which the determination of the differences in the application data of the first and second terminal device is made using the application register server, step 16. At step 17, the determined differences in the application data of the first and second terminal device are transmitted to the second terminal device. Next, at step 18, a connection is established from the sec-

ond terminal device to the first application server by way of the telecommunication network. From the first application server in question, the software applications that the second terminal device lacks are transmitted to it to be installed, step 19. At step 110, a connection is established from the second terminal device to the second application server by way of the telecommunication network. The second application server in question is used to transmit to the second terminal device the updates of its outdated software applications to be installed, step 111. It must be noted that the term server is used to refer to a functional entity. In one embodiment of the invention, the aforementioned application register server and application server are implemented as a physically integrated entity. In other words, one piece of server equipment is maintained in which the functions of both the application register server and application servers are implemented. Further in one embodiment of the invention, the aforementioned application register server and application server are implemented as entities physically separate from each other.

In addition in the example of Fig. 1, the setting data of the first terminal device is determined and stored on the application register server. Further, from the second terminal device, a connection is established to the application register server by way of the telecommunication network, the setting data of the first terminal device stored on the application register server is transferred to the second terminal device, and the settings of the software applications of the second terminal device are modified utilising the transferred setting data of the first terminal device.

Further in the example of Fig. 1, the user data of the of the first terminal device is determined and stored on the application register server, a con-

nection is established from the second terminal device to the application register server by way of the telecommunication network, and the user data of the first terminal device stored on the application register server is transferred to the second terminal device.

Fig. 2 schematically represents, by way of example, one method in accordance with the invention for installing software applications into a second terminal device in accordance with the first terminal device. At first, at step 20, the application data of the first terminal device is determined, after which at step 21, a connection is established from the first terminal device to the application register server by way of the telecommunication network, and the determined application data of the first terminal device is stored on the application register server at step 22. In the example of Fig. 2, the aforementioned telecommunication network comprises several different types of subnetworks communicating with each other, such as e.g. an Internet network and a mobile communication network, which are connected to each other in some manner known in itself.

At step 23, the application data of the second terminal device is determined, after which at step 24, a connection is established from the second terminal device to the application register server by way of the telecommunication network. Next, at step 25, the application data of the first terminal device is transmitted from the application register server to the second terminal device, after which the aforementioned determination of the differences in the application data of the first and second terminal device is made using the application register server, step 26. Next, at step 27, a connection is established from the second terminal device to the first application server by way of the telecommunication network. From the first application server in question, the software ap-

plications that the second terminal device lacks are transmitted to it to be installed, step 28. At step 29, a connection is established from the second terminal device to the second application server by way of the telecommunication network. The second application server in question is used to transmit to the second terminal device the updates of its outdated software applications to be installed, step 210. It must be noted that the term server is used to refer to a functional entity. In one embodiment of the invention, the aforementioned application register server and application server are implemented as a physically integrated entity. In other words, one piece of server equipment is maintained in which the functions of both the application register server and application servers are implemented. Further in one embodiment of the invention, the aforementioned application register server and application server are implemented as entities physically separate from each other.

In addition in the example of Fig. 2, the setting data of the first terminal device is determined and stored on the application register server. Further, from the second terminal device, a connection is established to the application register server by way of the telecommunication network, the setting data of the first terminal device stored on the application register server is transferred to the second terminal device, and the settings of the software applications of the second terminal device are modified utilising the transferred setting data of the first terminal device.

Further in the example of Fig. 2, the user data of the first terminal device is determined and stored on the application register server, a connection is established from the second terminal device to the application register server by way of the telecommunication network, and the user data of the first

terminal device stored on the application register server is transferred to the second terminal device.

The invention is not restricted merely to examples referred to above, instead many variations are possible within the scope of the inventive idea defined by the claims.

CLAIMS

1. A method for installing software applications into a second terminal device in accordance with the first terminal device, which method comprises the steps of:

determining the application data of the first terminal device

establishing a connection from the first terminal device to the application register server by way of the telecommunication network, and

storing the determined application data of the first terminal device on the application register server,

characterised in that the method further comprises the steps of:

determining the application data of the second terminal device,

establishing a connection from the second terminal device to the application register server by way of the telecommunication network, and

determining the differences in the application data of the aforementioned first and second terminal device,

establishing a connection from the second terminal device to one or more application servers by way of the telecommunication network, and

transmitting from the application servers in question to the second terminal device the software applications the second terminal device lacks and/or the updates of its outdated software applications to be installed.

2. The method according to claim 1, characterised in that the method further comprises the steps of:

transmitting the application data of the second terminal device to the application register server after a connection has been established from the sec-

ond terminal device to the application register server,

making the determination of the differences in the application data of the first and second terminal device using the application register server, and

transmitting the determined differences in the application data of the first and second terminal device to the second terminal device.

3. The method according to claim 1, characterised in that the method further comprises the steps of:

transmitting the application data of the first terminal device from the application register server to the second terminal device after a connection has been established from the second terminal device to the application register server, and

making the determination of the differences in the application data of the first and second terminal device using the second terminal device.

4. The method according to claim 1, 2 or 3, characterised in that the method further comprises the steps of:

determining the setting data of the first terminal device and storing it on the application register server,

establishing a connection from the second terminal device to the application register server by way of the telecommunication network,

transferring the setting data stored on the application register server to the second terminal device, and

modifying the settings of the software applications of the second terminal device utilising the transferred setting data of the first terminal device.

5. The method according to claim 1, 2, 3 or 4, characterised in that the method further comprises the steps of:

determining the user data of the first terminal device and storing it on the application register server,

establishing a connection from the second terminal device to the application register server by way of the telecommunication network, and

transferring the user data of the first terminal device stored on the application register server to the second terminal device.

6. The method according to claim 1, 2, 3, 4 or 5, characterised in that the aforementioned application register server and application server are implemented as physically separate entities.

7. The method according to claim 1, 2, 3, 4 or 5, characterised in that the aforementioned application register server and application server are implemented as a physically integrated entity.

8. The method according to claim 1, 2, 3, 4, 5, 6 or 7, characterised in that the aforementioned telecommunication network comprises several different types of subnetworks communicating with each other.

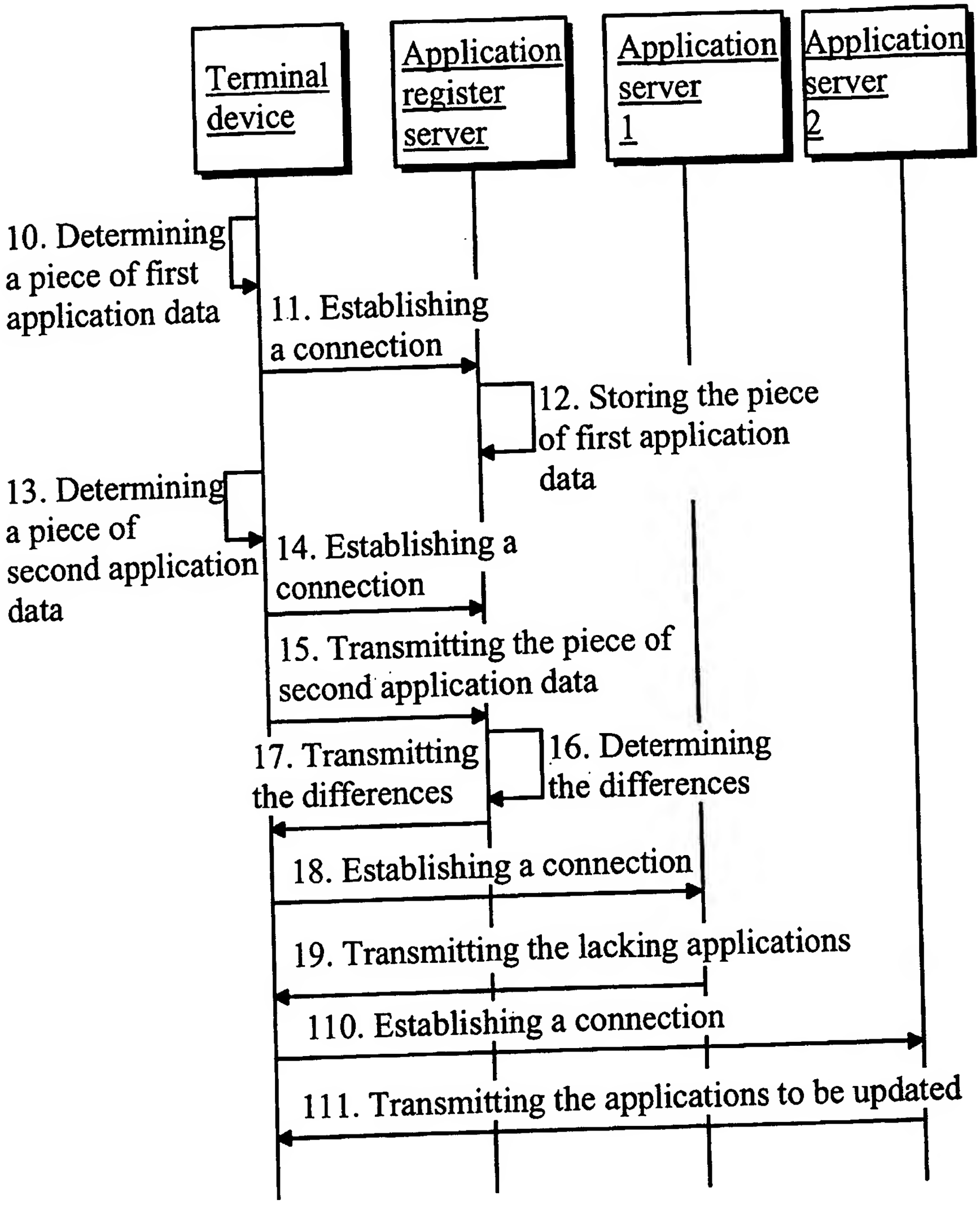
Terminal device
Application register server
Application server 1
Application server 2
10. Determining a piece of first application data
11. Establishing a connection
12. Storing the piece of first application data
13. Determining a piece of second application data
14. Establishing a connection
15. Transmitting the piece of second application data
16. Determining the differences
17. Transmitting the differences
18. Establishing a connection
19. Transmitting the lacking applications
110. Establishing a connection
111. Transmitting the applications to be updated

Fig. 1

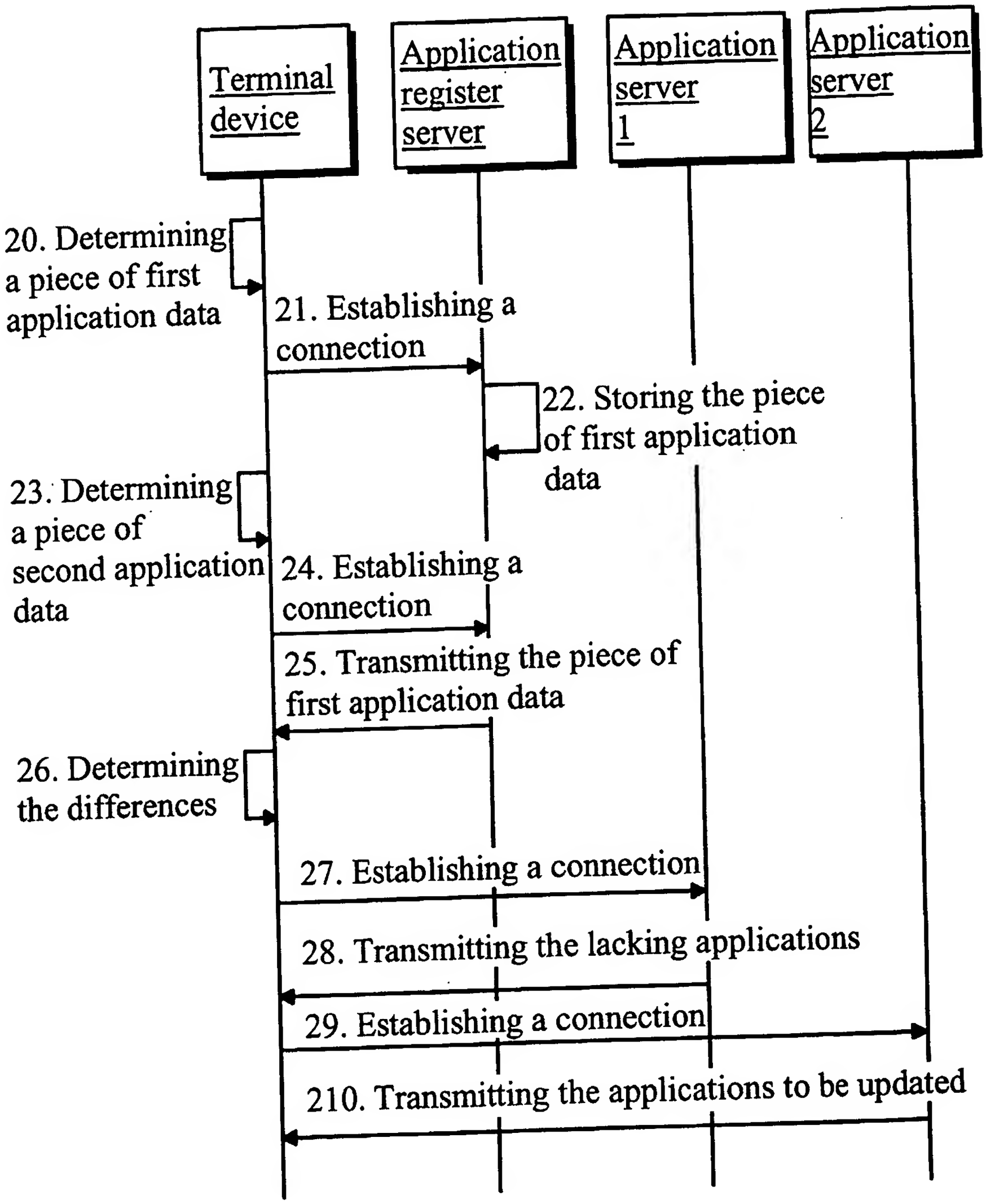
Terminal device
Application register server
Application server 1
Application server 2
20. Determining a piece of first application data
21. Establishing a connection
22. Storing the piece of first application data
23. Determining a piece of second application data
24. Establishing a connection
25. Transmitting the piece of first application data
26. Determining the differences
27. Establishing a connection
28. Transmitting the lacking applications
29. Establishing a connection
210. Transmitting the applications to be updated

Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00226

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/32
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04B, H04M, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9927730 A1 (SWISSCOM AG), 3 June 1999 (03.06.99), figure 1, abstract ---	1-8
X	EP 1063834 A2 (SIEMENS AKTIENGESELLSCHAFT), 27 December 2000 (27.12.00), column 1, line 1 - column 4, line 33, figure 1, abstract ---	1-8
X	WO 0031943 A1 (SIEMENS AKTIENGESELLSCHAFT), 2 June 2000 (02.06.00), page 1, line 1 - page 4, line 8, abstract ---	1-8

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

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Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer
Roland Landström /js
Telephone No. +46 8 782 25 00

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00226

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1049006 A2 (EMISIS INFOCOM GROUP PIC), 2 November 2000 (02.11.00), figure 1, claims 1-2, abstract -- --------	3

INTERNATIONAL SEARCH REPORT

Information on patent family members

06/07/02

International application No.
PCT/FI 02/00226

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WO 9927730 A1	03/06/99	AT 202669 T	15/07/01
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		WO 0063774 A	26/10/00